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Cheng et al.

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[54] **DRAWER**

[76] Inventors: **Yung Sheng Cheng; Kui-Chuan Sung**, both of P.O. Box 82-144, Taipei, Taiwan

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[51] **Int. Cl.**[6] **A47B 88/00**

[52] **U.S. Cl.** **312/348.2**; 312/348.1

[58] **Field of Search** 312/330.1, 348.2, 312/348.1, 348.4, 257.1, 263

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,282,635	11/1966	Himelreich	312/330.1
3,556,626	1/1971	Schock	312/348.1
4,099,815	7/1978	Cox et al.	312/348.2
4,108,520	8/1978	Litchfield	312/348.2

FOREIGN PATENT DOCUMENTS

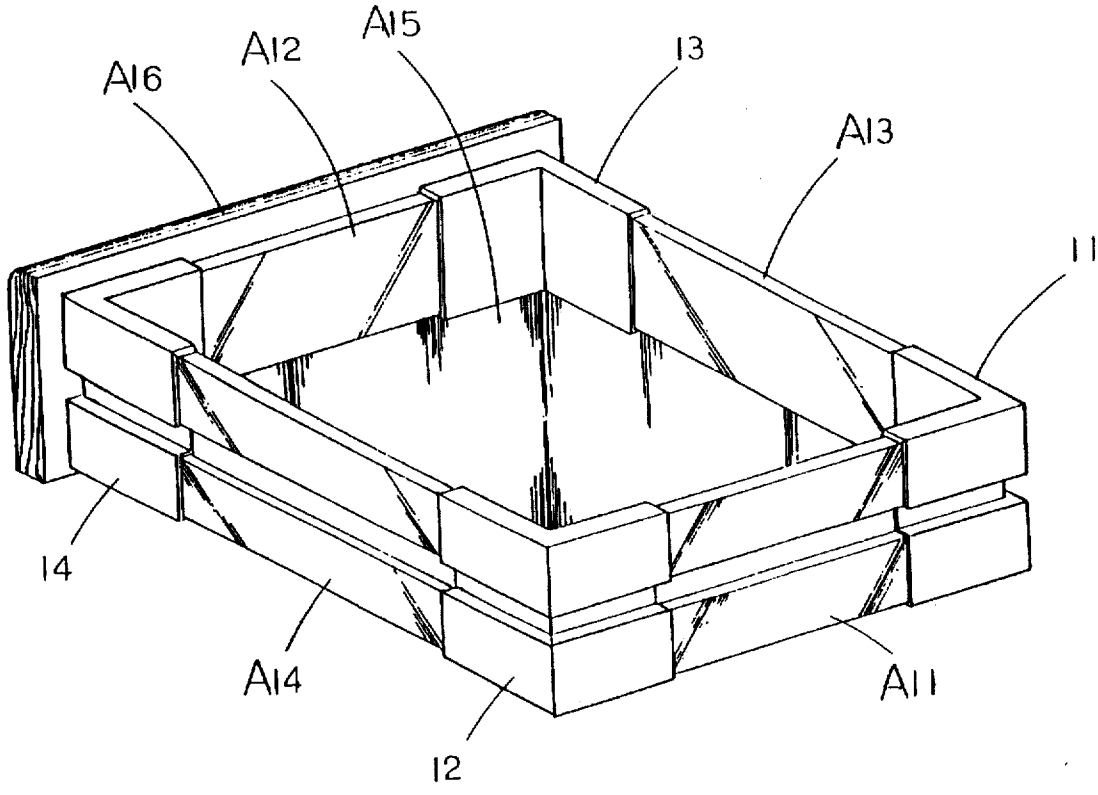
0425447	5/1991	European Pat. Off.	312/330.1
1410377	10/1975	United Kingdom	312/348.2

Primary Examiner—Peter M. Cuomo
Assistant Examiner—Gerald A. Anderson
Attorney, Agent, or Firm—Alfred Lei

[57] **ABSTRACT**

A drawer including four connecting angle plates to connect an upright front board, and upright back board, two upright side boards, and a horizontal bottom board together, wherein each of the connecting angle plates has a first longitudinal mounting groove longitudinally disposed at an inner side along the bottom adapted for mounting the horizontal bottom board, a second longitudinal mounting groove longitudinally disposed at an outer side in the middle adapted for coupling to a sliding track in the table, desk, etc., in which the drawer is installed, a first coupling hole at one end and a second coupling hole at an opposite end adapted for receiving the upright front and back boards and the upright side boards by plug joints; the upright front and back boards and the upright side boards are respectively cut from an elongated plastic base board, each having a first longitudinal mounting groove longitudinally disposed at an inner side along the bottom adapted for mounting the horizontal bottom board, and a second longitudinal mounting groove longitudinally disposed at an outer side in the middle adapted for coupling to a sliding track in the table, desk, etc., in which the drawer is installed.

2 Claims, 6 Drawing Sheets



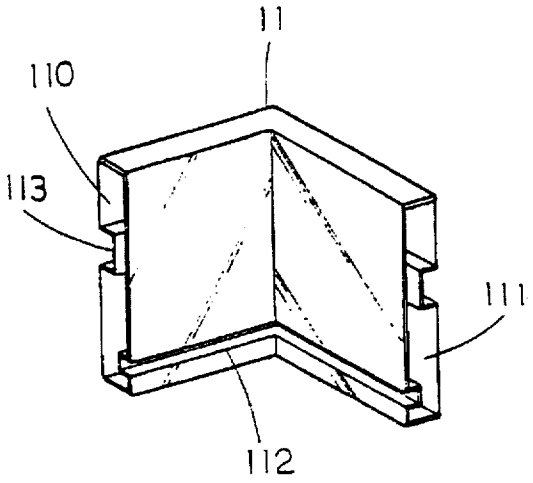


FIG. 1

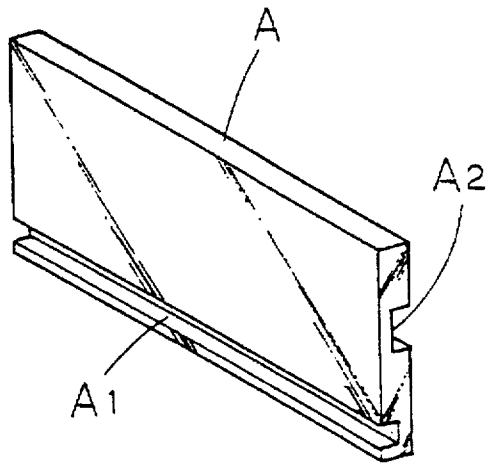


FIG. 2

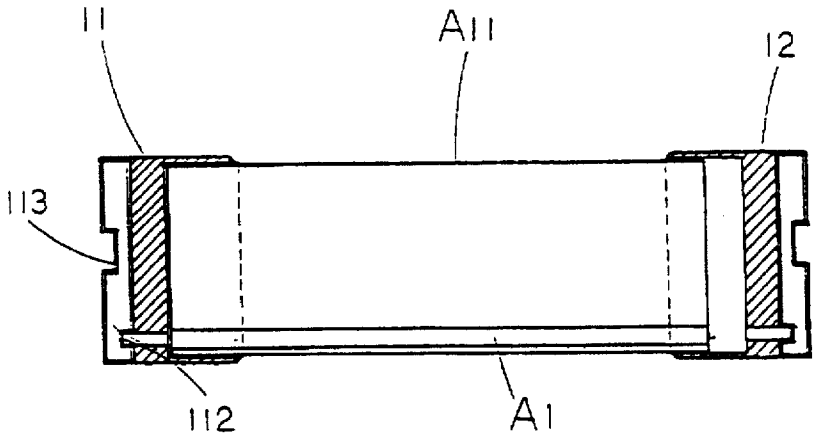


FIG. 3

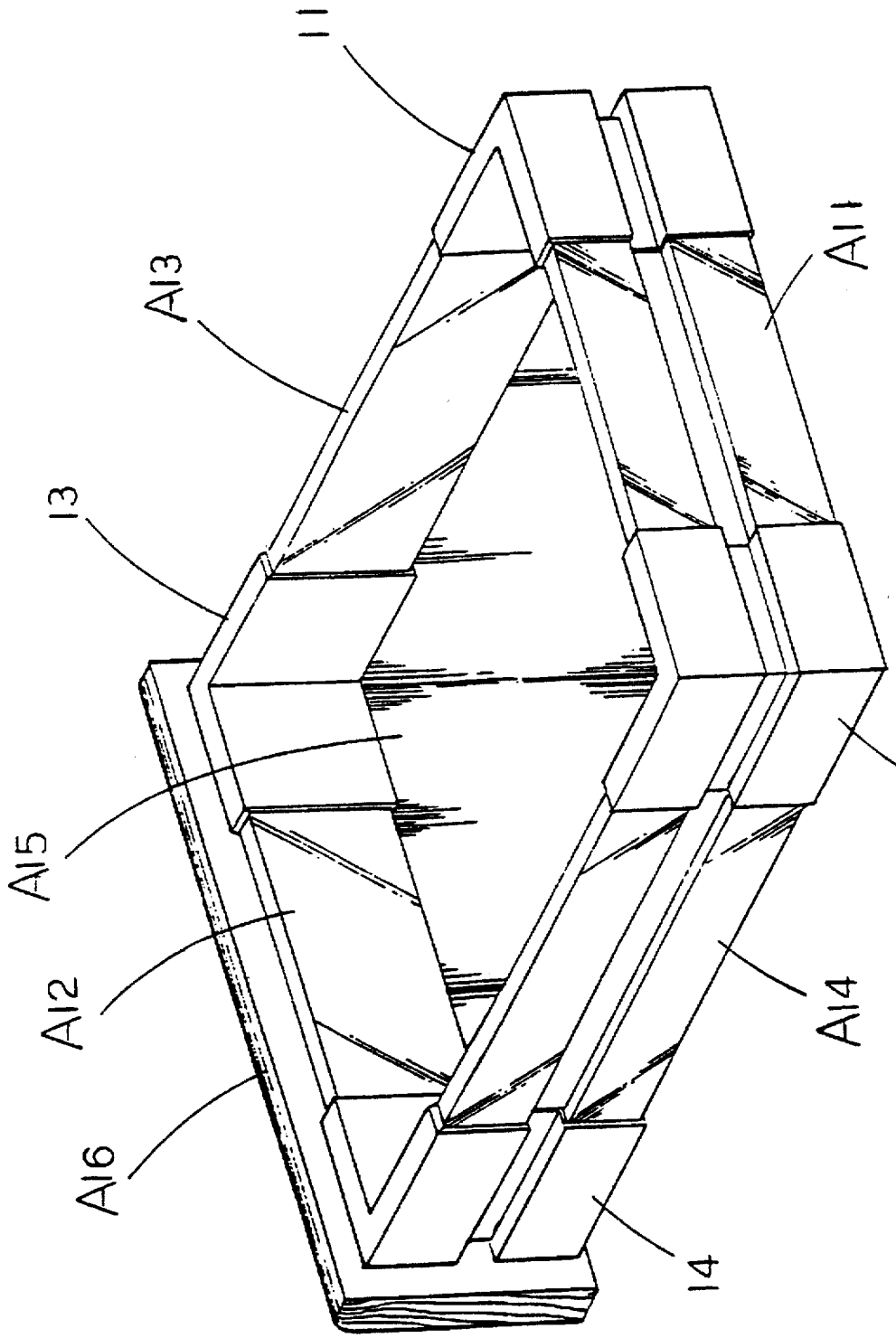


FIG. 4

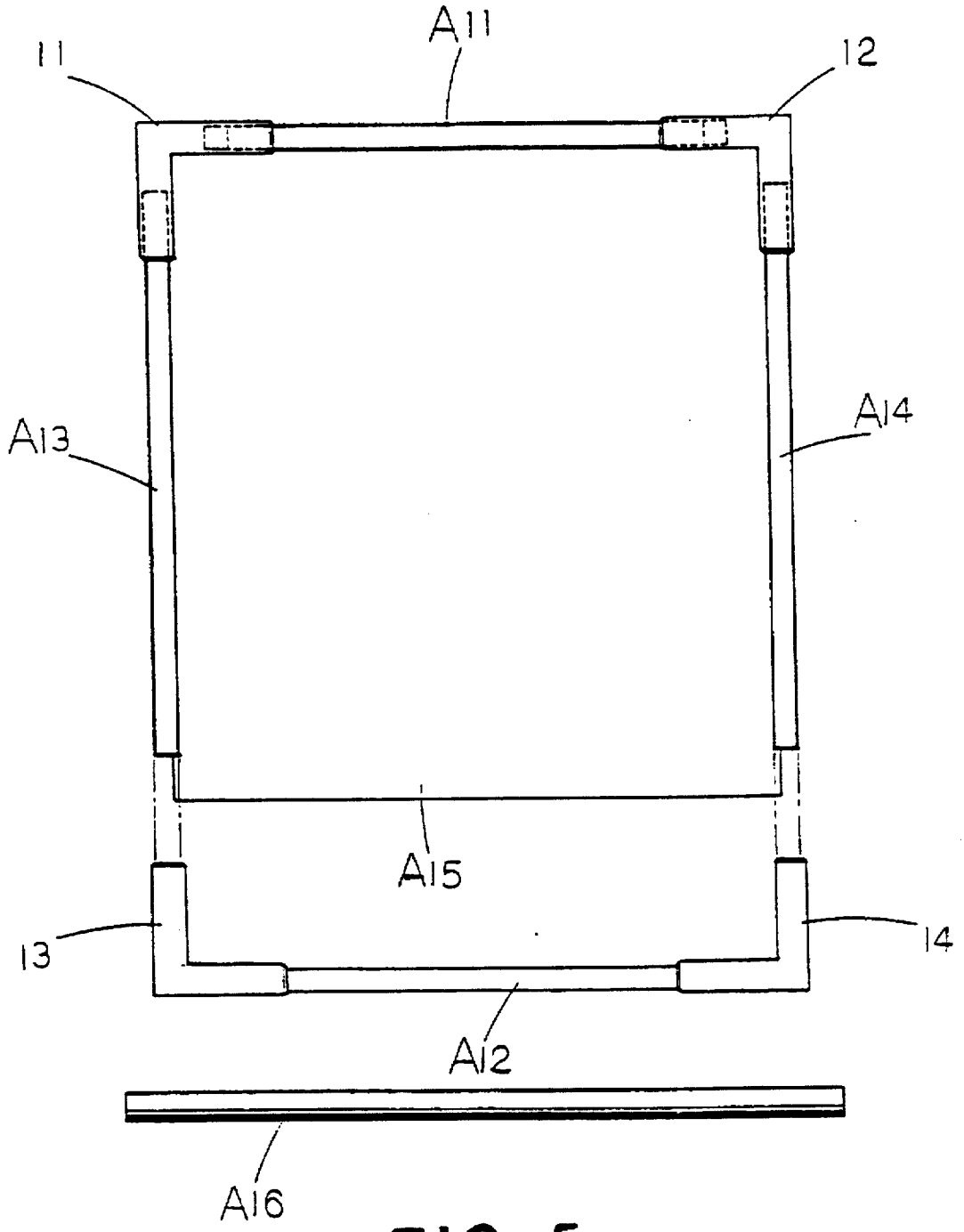


FIG. 5

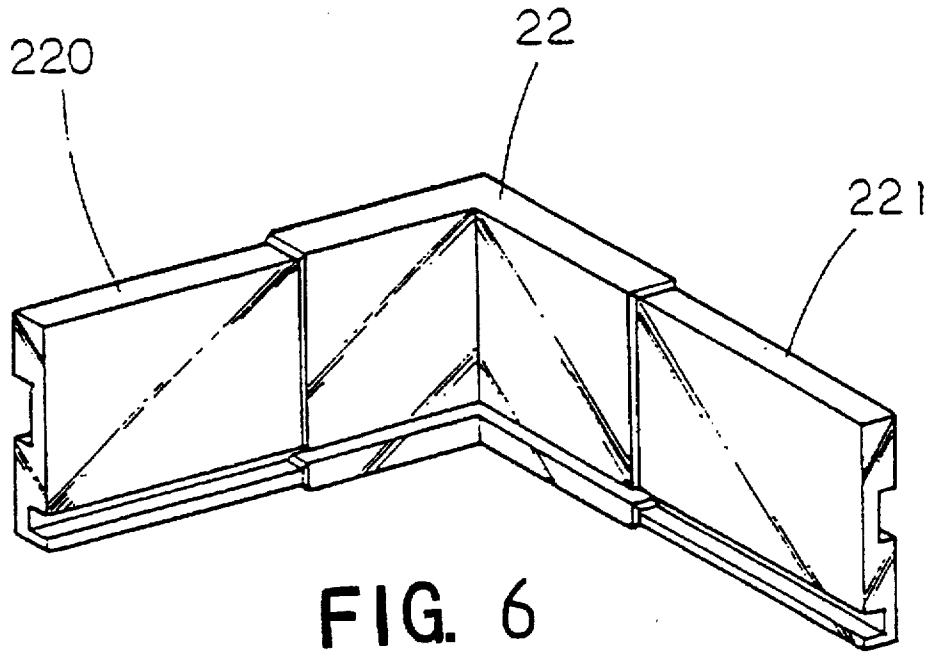


FIG. 6

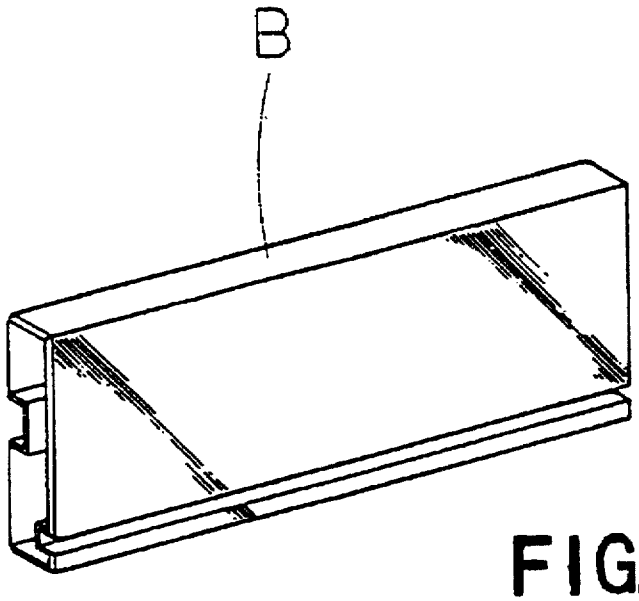


FIG. 7

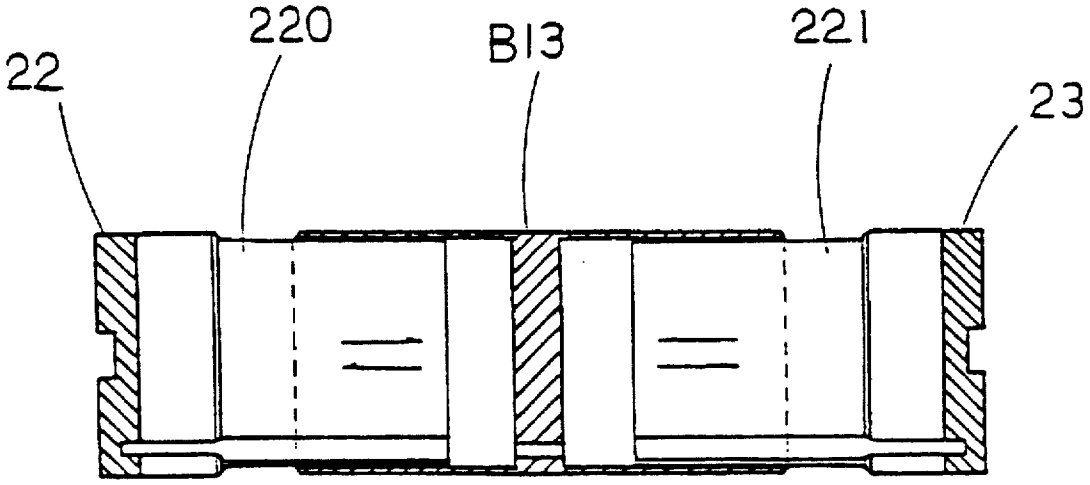


FIG. 8

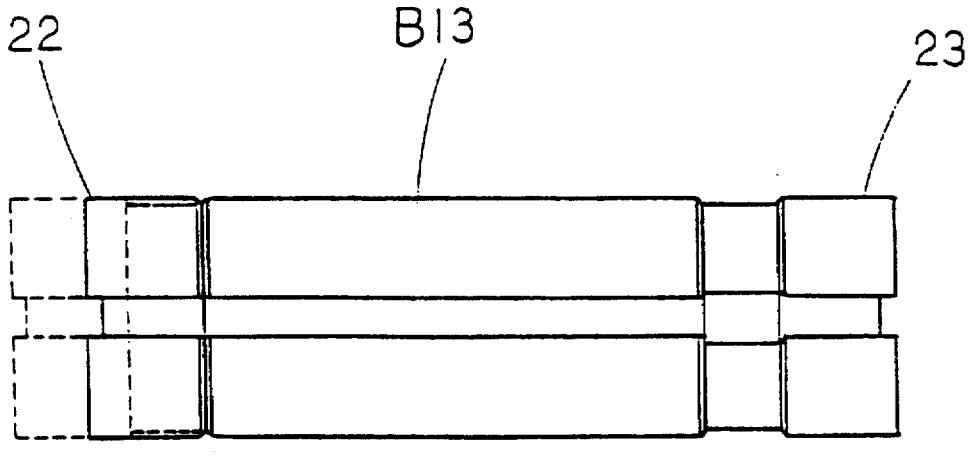


FIG. 9

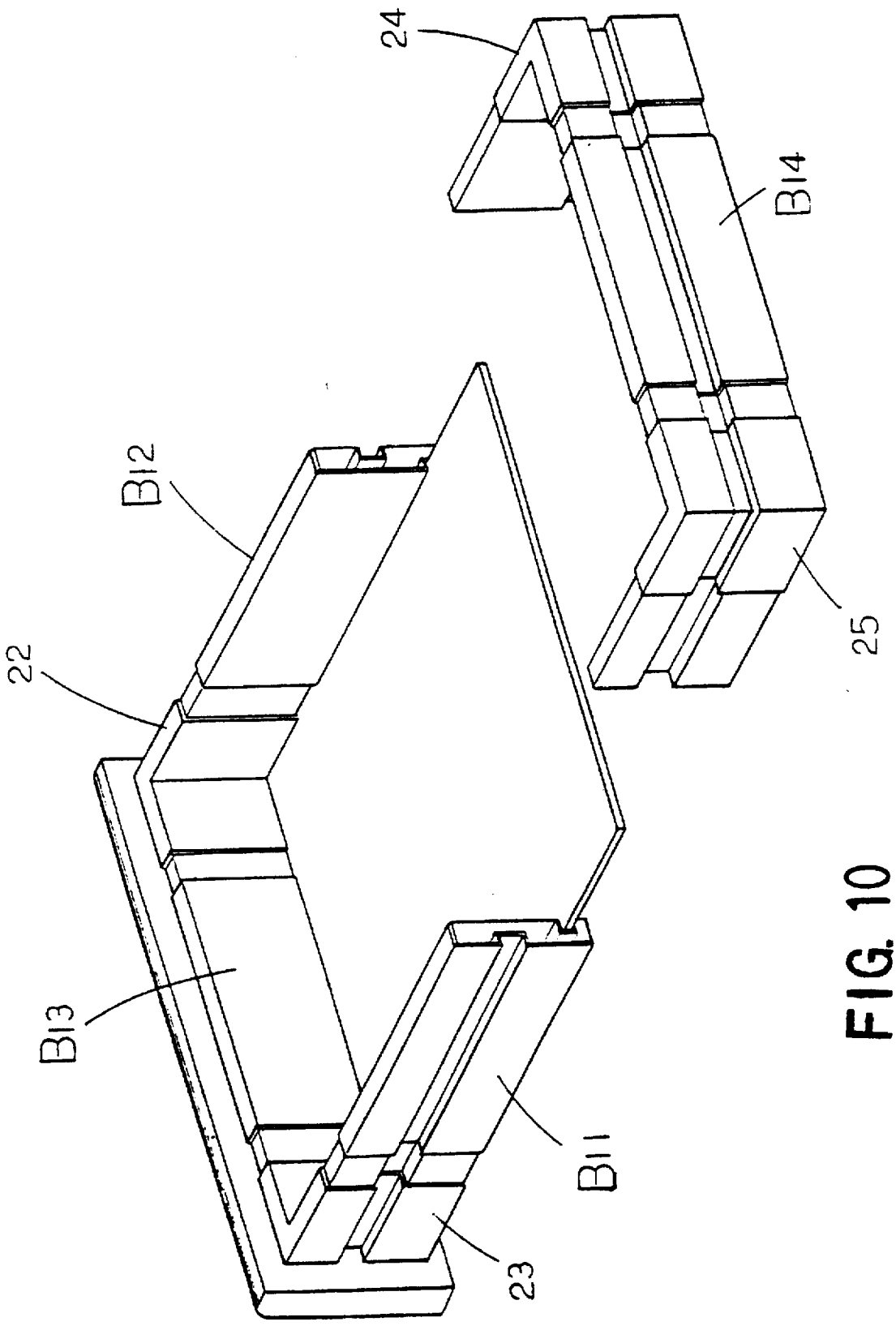


FIG. 10

DRAWER

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to drawers, and in particular to a plastic drawer which is assembled by using four connecting angle plates to connect an upright front board, an upright back board, two upright side boards, and a horizontal bottom board together.

2. Description of the Prior Art

Regular drawers are commonly made from wooden plates, comprised of two upright side panels, an upright front panel, an upright back panel, a horizontal bottom panel, and a face panel. These panels are fastened to one another by dovetail joints or screws. Because wooden material is difficult and expensive to obtain and cutting trees in order to obtain wooden material will destroy the relation of living things to their environment, it is economic to make drawers from wooden material. Furthermore, only experienced, skillful artisan can make drawers from wooden material because a series of procedures including cutting, planing, boring, nailing, etc. must be employed. While nailing, the structure of wooden plates may be damaged, causing the wooden plates to crack. In order to eliminate the aforesaid drawbacks, plastic drawers have been developed. Regular plastic drawers are made by fastening a plurality of plastic members together. However, these plastic members are separately injection molded from plastic. Therefore, the molding cost is high.

SUMMARY OF THE INVENTION

This invention relates to drawers, and in particular to a plastic drawer which is assembled by using four connecting angle plates to connect an upright front board, an upright back board, two upright side boards, and a horizontal bottom board together.

According to the present invention, the drawer includes four connecting angle plates to connect an upright front board, an upright back board, two upright side boards, and a horizontal bottom board together, wherein each of the connecting angle plates has a first longitudinal mounting groove longitudinally disposed at an inner side along the bottom adapted for mounting the horizontal bottom board, a second longitudinal mounting groove longitudinally disposed at an outer side in the middle adapted for coupling to a sliding track in the table, desk, etc., in which the drawer is installed, a first coupling hole at one end and a second coupling hole at an opposite end adapted for receiving the upright front and back boards and the upright side boards by plug joints; the upright front and back boards and the upright side boards are respectively cut from an elongated plastic base board, each having a first longitudinal mounting groove longitudinally disposed at an inner side along the bottom adapted for mounting the horizontal bottom board, and a second longitudinal mounting groove longitudinally disposed at an outer side in the middle adapted for coupling to a sliding track in the table, desk, etc., in which the drawer is installed. Because the connecting angle plates are identical, and the upright front and back boards and the upright side boards are respectively cut from a plastic base board, the manufacturing cost of the drawer is low.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. **1** is an elevational view of a connecting angle plate according to the first embodiment of the present invention;

FIG. **2** is an elevational view of an elongated plastic base board according to the first embodiment of the present invention;

FIG. **3** is a sectional view showing two connecting angle plates fastened to the two opposite ends of the upright back board according to the first embodiment of the present invention;

FIG. **4** is an elevational view of a drawer according to the first embodiment of the present invention;

FIG. **5** is a top view of the first embodiment of the present invention;

FIG. **6** is an elevational view of a connecting angle plate according to the second embodiment of the present invention;

FIG. **7** is an elevational view of an elongated plastic base board according to the second embodiment of the present invention;

FIG. **8** is a sectional view showing two connecting angle plates fastened to the two opposite ends of the upright front board according to the first embodiment of the present invention;

FIG. **9** is a plain view of FIG. **8**; and

FIG. **10** is an elevational and partially exploded view of the second embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

For the purpose of promoting an understanding of the principles of the invention, reference will now be made to the embodiment illustrated in the drawings. Specific language will be used to described same. It will, nevertheless, be understood that no limitation of the scope of the invention is thereby intended, such alterations and further modifications in the illustrated device, and such further applications of the principles of the invention as illustrated herein being contemplated as would normally occur to one skilled in the art to which the invention relates.

Referring to FIGS. **4** and **5**, a drawer in accordance with the present invention is generally comprised of an upright front board **A12**, an upright back board **A11**, two upright side boards **A13**, **A14** connected in parallel between the upright front board **A12** and the upright back board **A11**, four connecting angle plates **11**, **12**, **13**, **14** respectively disposed at the four angles to connect the upright front board **A12**, the upright back board **A11**, and the upright side boards **A13**, **A14** together, a horizontal bottom board **A15** mounted within the upright front and back boards **A12**, **A11** and the upright side boards **A13**, **A14** at the bottom side, and an upright face panel **A16** fixed to the upright front board **A12** and the two corresponding connecting angle plates **13**, **14**. The upright front board **A12** and the upright back board **A11** are identical. The upright side boards **A13**, **A14** are identical.

Referring to FIGS. **1**, **2**, and **3**, and FIG. **4** again, the upright front and back boards **A12**, **A11** and the upright side boards **A13**, **A14** are respectively cut from an elongated base board A which is integrally injection molded from plastic. As illustrated in FIG. **2**, the base board A has a first longitudinal mounting groove **A1** longitudinally disposed at an inner side along the bottom, and a second longitudinal mounting groove **A2** longitudinally disposed at an outer side in the middle. The connecting angle plates **11**, **12**, **13**, **14** are identical. As illustrated in FIG. **1**, the connecting angle plate **11** comprises a first coupling hole **111** at one end, a second coupling hole **113** at an opposite end, a first longitudinal mounting groove **112** longitudinally disposed at an inner

side along the bottom, and a second longitudinal mounting groove **113** longitudinally disposed at an outer side in the middle. By fitting the boards **A11**, **A12**, **A13**, **A14** into the coupling holes **110**, **111** of the connecting angle plates **11**, the boards **A11**, **A12**, **A13**, **A14** and the connecting angle plates **11**, **12**, **13**, **14** are connected together. Before connecting the upright back board **A11** with the two corresponding connecting angle plates **11**, **12** to the upright side boards **A13**, **A14**, the horizontal bottom board **A15** is fastened to the first longitudinal mounting grooves **A1**, **112** of the upright side boards **A13**, **A14**, the upright front board **A12** and the other two connecting angle plates **13**, **14**. When the horizontal bottom board **A15** is installed, the connecting angle plates **11**, **12** are respectively coupled to the upright side boards **A13**, **A14**, permitting the horizontal bottom board **A15** to be forced into engagement with the first longitudinal mounting grooves **A1**, **112** of the upright back board **A11** and the connecting angle plates **11**, **12**. Then, the upright face panel **A16** is fixedly secured to the upright front board **A12** and the connecting angle plates **13**, **14**. When the drawer is assembled, the second longitudinal mounting grooves **A2** of the upright side boards **A13**, **A14** and the connecting angle plates **11**, **12**, **13**, **14** are longitudinally alinged for mounting on two opposite sliding tracks inside the table, desk, etc. Furthermore, screws or bonding agent may be employed to secure the connection between each two connected members.

FIGS. from **6** to **10** show an alternate form of the present invention. According to this alternate form, the upright front board **B13**, the upright back board **B14**, and the upright side boards **B11**, **B12** are respectively cut from a hollow base board **B** (see FIG. **7**); the connecting angle plate **22**, **23**, **24**, **25** are made of solid structure having two extended coupling portions **220**, **221** (see FIG. **6**) adapted for fitting into the ends of the boards **B11**, **B12**, **B13**, **B14**.

The invention is naturally not limited in any sense to the particular features specified in the forgoing or to the details of the particular embodiment which has been chosen in order to illustrate the invention. Consideration can be given to all kinds of variants of the particular embodiment which has been described by way of example and of its constituent elements without thereby departing from the scope of the invention. This invention accordingly includes all the means constituting technical equivalents of the means described as well as their combinations.

I claim:

1. A drawer of the type comprising an upright front board, an upright back board, two upright side boards connected in parallel between said upright front board and said upright back board, four connecting angle plates respectively disposed at four angles to connect said upright front board, said upright back board, and said upright side boards together, a horizontal bottom board mounted within said upright front and back boards, said upright side boards and said plates at a bottom side thereof, and an upright face panel fixed to said upright front board and the two corresponding connecting angle plates, wherein

said upright front and back boards and said upright side boards are respectively cut from an elongated plastic base board, each of said boards and said plates having a first longitudinal mounting groove longitudinally disposed at an inner side along the bottom side mounting said horizontal bottom board, and a second longitudinal mounting groove longitudinally disposed at an outer side in a middle thereof adapted for coupling to a sliding track in an article of furniture in which the drawer is installed; each of said boards having a first board coupling portion at one board end and a second board coupling portion at an opposite board end and for coupling to each said connecting angle plate having a first plate coupling portion at one plate end and a second plate coupling portion at a opposite plate end, each said board coupling portion coupled to a plate coupling portion by plug joints.

2. The drawer as claimed in claim **1** wherein the first and second coupling portions of said connecting angle plates are female coupling means, the first and second coupling portions of said upright front and back boards and said upright side boards are male coupling means respectively fitted into the female coupling means of said connecting angle plates.

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